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10/687,910

10/20/2003

Kunikazu Ohnishi

62807-145

2266

7590 02/28/2007  
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EXAMINER

GOMA, TAWFIK A

ART UNIT

PAPER NUMBER

2627

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|-----------|---------------|
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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/687,910 | <b>Applicant(s)</b><br>OHNISHI ET AL. |  |
|                              | <b>Examiner</b><br>Tawfik Goma       | <b>Art Unit</b><br>2627               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12/02/2006 and interview on 2/12/2007.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This action is in response to the interview conducted on 2/5/2007.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (US 6282164) in view of Holzapfel (US 5994692).

Regarding claim 1, Katayama discloses an optical pickup comprising: a laser light source (1, fig. 1); a beam separation means which separates a laser beam emitted by the laser light source into at least three beams (3a, fig. 1); a converging optical system which converges the three beams and forms three separate convergence spots on a recording surface of an optical information record medium (5, fig. 1 and fig. 8); and a photodetector which is placed to receive each of reflected beams of the three convergence spots from the optical information record medium with a photoreceptor surface divided into at least two faces (8b, fig. 9), wherein: the beam separation means is divided into at least three areas (18a, 18b, 18c, fig. 7), first through third areas, each of which has prescribed periodic structure (fig. 7), and the first area is placed between the second and third areas (18b, fig. 7), and the second area has periodic structure that is shifted from that of the first area by approximately 90 degrees in the phase of the periodic structure (col. 10 lines 53-67). Katayama fails to disclose wherein the third area has periodic structure that is shifted from that of the second area by approximately 180 degrees in the phase

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of the periodic structure. In the same field of endeavor, Holzapfel discloses a beam separation means with first through third areas (22-24, fig. 5) such that the first area is +90 out of phase with the middle (second) area, and the third area is -90 out of phase with the middle (second) area (fig. 5). It would have been obvious to one of ordinary skill in the art to modify the beam separation means disclosed by Katayama by providing a first and third area that are 180 degrees out of phase from one another, and 90 degrees out of phase with a middle second area. The rationale is as follows: One of ordinary skill in the art would at the time of the applicant's invention would have been motivated to provide the structure in order to reduce the harmonic wave content of the scanning signals (see Holzapfel col. 6 lines 15-19).

Regarding claim 2, Katayama further discloses wherein the three convergence spots are formed such that the interval between adjacent convergence spots measured in a direction substantially orthogonal to guide grooves periodically formed on the recording surface of the optical information record medium is approximately equal to zero or an integral multiple of a pitch between the guide grooves (fig. 8).

Regarding claim 3, Katayama discloses an optical information recording/reproducing apparatus for reading or writing information from/to an optical information record medium by laser beam irradiation (fig. 1), comprising: an optical pickup including a laser light source (1, fig. 1), a beam separation means which separates a laser beam emitted by the laser light source into at least three beams (3b, fig. 7), a converging optical system which converges the three beams and forms three separate convergence spots on a recording surface of the optical information record medium (fig. 1 and fig. 8), and a photodetector which is placed to receive each of reflected beams of the three convergence spots from the optical information

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record medium with a photoreceptor surface divided into at least two faces (8b, fig. 9); and a tracking error signal detection means having the function of detecting a tracking error signal according to a differential push-pull method by executing proper operations to signals obtained from the photoreceptor surfaces of the photodetector of the optical pickup (col. 11 lines 29-43), wherein: the beam separation means is partitioned into at least three areas (18a, 18b, 18c, fig. 7), first through third areas, each of which has prescribed periodic structure, and the first area is placed between the second and third areas, and the second area has periodic structure that is shifted from that of the first area by approximately 90.degree in the phase of the periodic structure, and the third area has periodic structure that is shifted from that of the second area by approximately 180.degrees in the phase of the periodic structure (col. 10 lines 53-67).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (US 6202164) in view of Kumagi al (US 6594210).

Regarding claim 4, Katayama discloses an optical information recording/reproducing apparatus comprising: an optical pickup including a laser light source (1, fig. 1), a beam separation means which separates a laser beam emitted by the laser light source into a main beam and at least two sub beams (19a, 19b, 19c, fig. 8), a converging optical system which converges the main beam and the sub beams and forms three separate convergence spots on a recording surface of an optical information record medium on which guide grooves are formed at preset pitches (fig. 8), and a photodetector which is placed to receive each of reflected beams of the three convergence spots from the optical information record medium with a photoreceptor surface divided into at least two faces (8b, fig. 9); a push-pull signal generation circuit which generates push-pull signals regarding the main beam and the sub beams

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respectively by executing proper operations to photoelectric signals obtained from the photoreceptor surfaces of the optical pickup (col. 11 lines 29-43); a differential push-pull signal generation circuit which generates a differential push-pull signal by adding all or part of the push-pull signals regarding the sub beams together (col. 11 lines 34-36), amplifying the added signal by an amplification factor K, and subtracting the amplified signal from the push-pull signal regarding the main beam (col. 11 lines 34-36). Katayama fails to disclose an amplification factor control means which changes the amplification factor K depending on the interval between the guide grooves of the optical information record medium. In the same field of endeavor Kumagi discloses a 3 beam optical pickup that has a coefficient controlling unit (43a, 43b, figs. 2) for adjusting a gain factor depending on the interval between the guide grooves of the optical information record medium (col. 16 lines 39-45). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the optical pickup disclosed by Katayama with the coefficient control taught by Kumagi. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to control the coefficient K based on an interval of the guide grooves in order apply the pickup device to various disk drives which receive different formats of discs (see Kumagai col. 16 lines 39-45).

### ***Response to Arguments***

Regarding applicant's arguments with respect to claims 1-4, applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.


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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Kórzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
T. Goma  
2/20/2007

  
TAN DINH  
PRIMARY EXAMINER

2/26/07